

Table 4. Special Status Species Addressed for the Ma-le'i Dunes Cooperative Management Area Public Access Plan

Plant Species	Status *	Habitat Characteristics (CNDDDB 2006)²	Potential for Occurrence at the CMA
<i>Abronia umbellata</i> ssp. <i>breviflora</i> pink sand verbena	List 1B.1 G4G5T2/S2.1	Coastal dunes and coastal strand from north coast of California into Oregon. Foredunes and interior dunes with sparse cover; 0-12m.	Present. Pink sand verbena occurs in the nearshore dunes of the CMA and adjacent foredune habitats of the North Spit.
<i>Angelica lucida</i> sea watch	List 4.2 G5/S2S3	Coastal bluff scrub, coastal dunes, coastal scrub, coastal salt marshes; 0-150m.	Present. Occurrences of sea watch have not been mapped within the CMA, but the species reportedly occurs with the brackish marsh habitats at Ma-le'i North (pers. comm. Andrea Pickart October 2006).
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i> coastal marsh milk-vetch	List 1B.2 G2T2/S2.2	Mesic sites in dunes or along streams or coastal salt marsh; 0-3m.	Low Potential. There are historical records for coastal marsh-milk vetch on the North Spit and suitable habitat does occur within the CMA, however, it has not been documented within the project area to date.
<i>Carex arcta</i> northern clustered sedge	List 2.2 G5/S1S2	Bogs and fens, North Coast coniferous forest (mesic); 60-1,400m.	Low Potential. No occurrence records for northern clustered sedge on the North Spit and it has not been documented within the CMA to date, although potentially suitable habitat areas (riparian swamp) may not have been thoroughly surveyed for this species.
<i>Carex leptalea</i> flaccid sedge	List 2.2 G5/S2?	Bogs and fens, meadows (mesic), marshes and swamps; 0-790m.	Low Potential. No occurrence records for flaccid sedge on the North Spit and it has not been documented within the CMA to date, although potentially suitable habitat areas (riparian swamp) may not have been thoroughly surveyed for this species.

² California Department of Fish and Game Natural Diversity Data Base. 2006.

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<i>Carex lyngbyei</i> Lyngbye's sedge	List 2.2 G5/S2.2	Marshes and swamps (brackish or freshwater); 0-10m	Present. Lyngbye's sedge was observed along a mainland bank of the Mad River Slough at Ma-le'l North during a reconnaissance site visit in 2006 by Mad River Biologists. The USFWS is aware of this occurrence; however, it has not been mapped for the CMA Public Access Plan or related biological studies.
<i>Carex praticola</i> meadow sedge	List 2.2 G5/S2S3	Moist to wet meadows; 0-3200m.	Low Potential. There are no records for meadow sedge on the North Spit, and it has not been documented within the CMA to date.
<i>Castilleja affinis</i> ssp. <i>litoralis</i> Oregon coast Indian paintbrush	List 2.2 G4G5T4/S2.2	Coastal bluff scrub, coastal dunes, coastal scrub/ sandy; 15-100m.	Low Potential / Not Present. Suitable habitat within the CMA includes undeveloped dunes; however, this species is not known to occur on the North Spit, and it has not been detected within the CMA to date. There is reasonable certainty that it does not occur within the nearshore dunes of the CMA.
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i> Humboldt Bay owl's-clover	List 1B.2 G4T2/S2.2	Found in coastal salt marsh habitat, in association with <i>Spartina</i> , <i>Distichlis</i> , <i>Salicornia</i> , <i>Jaumea</i> . 0-3m. Known only from Humboldt and Marin Counties.	Present. This species occurs on island and mainland salt marsh habitats of the CMA. It occurs on the mainland at the end of the Railroad berm trail at Ma-le'l North.
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i> Point Reyes bird's-beak	List 1B.2 G4?T2/S2.2	Found in coastal salt marsh habitat, in association with <i>Spartina</i> , <i>Distichlis</i> , <i>Salicornia</i> , <i>Jaumea</i> , etc.; 0-15m.	Present. The majority of the bird's-beak within the CMA is found on island salt marshes, but small occurrences have been mapped on the mainland at Ma-le'l North on a small promontory south of the proposed boat landing and north of Sierra Pacific Industries.

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<i>Erysimum menziesii</i> ssp. <i>eurekaense</i> Humboldt Bay wallflower	FE, SE List 1B.1 G3?T1/S1.1	Endemic to coastal dunes (foredunes) around Humboldt Bay; 0-10m.	Present. Humboldt Bay wallflower occurs in the nearshore dunes of Ma-le'I South and Ma-le'I North, found primarily in the dune mat vegetation type.
<i>Erythronium revolutum</i> coast fawn lily	List 2.2 G4/S2.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest / mesic, streambanks; 0-1065m.	Not Present. There are no occurrence records for coast fawn lily on the North Spit, and it has not been detected within the CMA to date.
<i>Fissidins pauperculus</i> minute pocket-moss	List 1B.2 G3?/S1.2	North coast coniferous forests (damp coastal soil); 10-100m.	Low Potential. The beach pine/Sitka spruce forest may be suitable for this moss; however, it has not been detected within the CMA and no occurrence records exist for the North Spit.
<i>Gilia capitata</i> ssp. <i>pacifica</i> Pacific gilia	List 1B.2 G5T3T4/S2.2 ?	Coastal bluff scrub, coastal prairie, valley and foothill grasslands; 5-300m.	Low Potential. There are no occurrence records for Pacific gilia on the North Spit and it has not been detected within the CMA to date. Potential suitable habitat is limited within the project area.
<i>Gilia millefoliata</i> dark-eyed gilia	List 1B.2 G2/S2.2	Coastal dunes; 2-20m.	Present. Occurrences of dark-eyed gilia have been mapped within the nearshore dunes at Ma-le'I South. This species also occurs at Ma-le'I North.
<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i> American glehnia	List 4.2 G5T5/S3.2	Coastal dunes; 0-20m.	Present. Occurrences of American glehnia have been documented at Ma-le'I North and South.
<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i> Short-leaved evax	List 2.2 G4T3/S3.2	Coastal bluff scrub, coastal dunes, sandy bluffs and flats; 0-200m.	Moderate Potential. This species has not been documented within the CMA but a population is known from the North Spit near the Samoa drag strip and Airport and near the town of Manila. Suitable habitat is

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			present at the CMA. This annual species withers rapidly after setting seed and is often overlooked due to its diminutive size. Ma-le'I North has been surveyed for this species, with none found.
<i>Lathyrus japonicus</i> sand pea	List 2.1 G5/S1.1	Coastal dunes, 1-30m.	Low Potential. Historical occurrences of sand pea are known from the North Spit, and suitable habitat includes undeveloped dunes; however, this species has not been documented within the CMA. There is reasonable certainty that it does not occur within the nearshore dunes of the CMA based on recent survey efforts.
<i>Lathyrus palustris</i> marsh pea	List 2.2 G5/S2S3	Bogs and fens, mesic sites in lower montane coniferous forest, marshes and swamps, North Coast coniferous forest, coastal prairie, and coastal scrub; 1-100m.	Low Potential. There is an occurrence record of marsh pea near the town of Samoa in the CNDDDB; however, this species has not been documented within the CMA. Potentially suitable habitat areas (i.e. riparian swamp) may not have been thoroughly surveyed for this species.
<i>Layia carnosa</i> beach layia	FE, SE List 1B.1 G1/S1.1	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes; 0-75m.	Present. Beach layia is locally common in the nearshore dunes of the CMA.
<i>Lilium occidentale</i> western lily	FE, SE List 1B.1 G1/S1.2	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, North Coast coniferous forest. On well-drained, old beach washes overlain with wind-blown alluvium and original topsoil; usually near margins of Sitka spruce; 2-185m.	Not Present. No occurrence records exist for the North Spit, and suitable habitat conditions are not present within the CMA (pers. comm. David Imper 2006).
<i>Lycopodium clavatum</i>	List 2.3	In California, known only from Humboldt County. North Coast coniferous forest,	Not present. Running pine has not been documented within the CMA and no occurrence records presently

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Running-pine	G5/S2S3	marshes and swamps; forest floors in shady and semi-exposed mesic areas, 45-1640m.	exist for the North Spit.
<i>Mitella caulescens</i> leafy-stemmed mitrewort	List 4.2 G5/S4.2	Broadleaved upland forests, lower montane coniferous forests, meadows and seeps, North Coast coniferous forests/mesic; 6-1710m.	Not Present. No occurrence records exist for the North Spit, and suitable habitat conditions are highly limited within the CMA. This species was recently down listed to CNPS list 4 from CNPS List 2.
<i>Monotropa uniflora</i> Indian pipe	List 2.2 G5/S2S3	Broadleaved upland forest, North Coast coniferous forest; often under redwoods or western hemlock; 10-200m.	Not Present. Indian pipe has not been documented from the North Spit, and suitable habitat is not present within the CMA.
<i>Montia howellii</i> Howell's montia	List 2.2 G3G4/S1.2	Meadows, North Coast coniferous forests, vernal pools. Vernal mesic sites; often on compacted soil. 0-400m. Rediscovered in California in 1999.	Not Present. No occurrence records exist for Howell's montia on the North Spit, and known habitat characteristics are not present within the CMA.
<i>Puccinellia pumila</i> dwarf alkali grass	List 2.2 G4?/S1.1?	In California, known only from Humboldt and Mendocino counties. Mineral spring meadows and coastal salt marshes; 1-10m.	Low Potential. Suitable habitat for dwarf alkali grass may include the estuarine wetlands of the Mad River Slough at Ma-le'l North, although this species has not been documented within the CMA to date.
<i>Sidalcea malachroides</i> maple-leaved checkerbloom	List 4.2 G3/S3.2	Broadleaved upland forest, coastal prairie, coastal scrub, and North Coast coniferous forest. Woodlands and clearings near coast; often in disturbed areas; 2-760m.	Not Present. Maple-leaved checkerbloom is not known to occur on the North Spit, and habitat components meeting this species' requirements are limited within the CMA.
<i>Sidalcea malviflora</i> ssp. <i>patula</i> Siskiyou checkerbloom	List 1B.2 G5T1/S1.1	Coastal prairie, broad-leaved upland forest. Open coastal forest; 15-65m.	Not Present. Siskiyou checkerbloom is not known to occur on the North Spit, and habitat components meeting this species' requirements are limited within the CMA.

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<i>Sidalcea oregana ssp. eximia</i> coast checkerbloom	List 1B.2 G5T1/S1.2	Endemic to Humboldt County. Meadows and seeps, North Coast coniferous forest, and lower montane coniferous forest; 0-1800m.	Not Present. Coast checkerbloom is not known to occur on the North Spit, and habitat components meeting this species' requirements are limited within the CMA.
<i>Spergularia canadensis var. occidentalis</i> western sand spurry	List 2.1 G5T4?/S1.1	Coastal salt marsh; 0-3 m.	Present. This species has been documented within the CMA; it has been documented in salt marsh habitats at Ma-le'i North.
<i>Usnea longissima</i> long-beard lichen	CLS Red List w/List 1B recommended G4/S4.2	North coast coniferous forest and broadleaved upland forest. Grows in the "redwood zone" on a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay; 0-2000 ft. in California.	Not Present. Long-beard lichen is not presently known to occur on the North Spit. There is no suitable habitat for this species within the CMA.
<i>Viola palustris</i> marsh violet	List 2.2 G5/S1S2	Swampy, shrubby places in coastal scrub or coastal bogs; 0-15m.	Low to Moderate Potential. Marsh violet has not been reported from CMA, although suitable habitat does exist and there are historical occurrences for this species on the North Spit. Suitable habitat areas (i.e. riparian swamp) may not have been thoroughly surveyed for this species.

Insect Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Cicindela hirticollis gravida</i> sandy beach tiger beetle	G5T2/S1	Inhabits areas adjacent to non-brackish water along the coast of California from the San Francisco Bay to northern Mexico. Habitat includes clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affect by wave action.	Not Present. Although historic occurrence records exist for both the Eureka and Arcata South quadrangles; sandy beach tiger beetle is considered extirpated, locally. Potentially suitable habitat within the CMA occurs is association with the freshwater riparian swamp and dune swales.

Fish Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Eucuclogobius newberryi</i> tidewater goby	FE, CSC G3/S2S3	Occurs in brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, tidewater goby needs fairly still but not stagnant water and high oxygen levels.	High Potential. Tidewater goby is known to occur within Humboldt Bay and has been detected in the Mad River Slough area of the Bay (NE portion of the Arcata Bay near H Street) as recently as 2000 (Greg Goldsmith, USFWS, pers. comm.). The Mad River Slough, bordering the project area contains suitable habitat for tidewater goby. The CMA falls within critical habitat for this species.
<i>Oncorhynchus clarki clarki</i> coast cutthroat trout	CSC G4T4/S3	Small, low gradient coastal streams and estuaries from the Eel River in California to the Oregon border. Needs shaded streams with water temperatures <18° C and small gravel for spawning.	High Potential. Coast cutthroat trout are known to occur in Humboldt Bay which is contiguous with the Mad River slough adjoining the CMA.
<i>Oncorhynchus kisutch</i> coho salmon - southern Oregon/northern	FT, ST G4T2Q/S2?	The federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. The state listing refers to populations between the	High Potential. Coho salmon are known to occur in Humboldt Bay which is contiguous with the Mad River slough adjoining the CMA. The CMA also falls within critical habitat for the southern Oregon/northern

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California ESU		Oregon border and Punta Gorda, California.	California ESU (Rick Rogers, NOAA Fisheries, pers. comm.).
<i>Oncorhynchus mykiss irideus</i> Steelhead – northern California ESU	FT G5T2Q/S2	Inhabits coastal basins from Redwood Creek, Humboldt County south to the Gualala River, Mendocino County. Listing does not include summer-run steelhead.	High Potential. Steelhead is known to occur in Humboldt Bay which is contiguous with the Mad River slough adjoining the CMA. The CMA also falls within critical habitat for the northern California ESU (Rick Rogers, NOAA Fisheries, pers. comm.).
<i>Oncorhynchus tshawytscha</i> Chinook Salmon – California coastal ESU	FT G5T2Q/S1	Federal listing refers to wild spawned, coastal, spring and fall runs between Redwood Creek, Humboldt County and the Russian River, Sonoma County.	High Potential. Chinook salmon is known to occur in Humboldt Bay which is contiguous with the Mad River slough adjoining the CMA. The CMA also falls within critical habitat for California coastal ESU (Rick Rogers, NOAA Fisheries, pers. comm.).

Amphibian Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Ascaphus truei</i> western tailed frog	CSC G4/S2S3	Restricted to perennial montane streams of montane hardwood-conifer, redwood, Douglas-fir, ponderosa pine habitats. Tadpoles require water below 15°C.	Not Present. Suitable habitat does not occur within the CMA.
<i>Rana aurora aurora</i> northern red-legged frog	CSC G4T4/S2?	Found in humid forests, woodland, grasslands, and streamsides in northwestern California, generally near permanent water. They can be found far from water, in damp woods and meadows during the non-breeding season.	Present. Northern red-legged frog is known to occur in dune swales and freshwater/riparian swamp throughout the CMA.
<i>Rhyacotriton variegates</i> southern torrent salamander	CSC G3G4/S2S3	Inhabits cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water. Coastal redwood, Douglas-fir, mixed conifer,	Not Present. Suitable habitat does not occur within the CMA.

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		montane hardwood-conifer habitats.	

Reptile Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Emys</i> (=Clemmys) <i>marmorata marmorata</i> northwestern pond turtle	CSC G3G4T3/S3	Ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. They need basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Moderate Potential. Along the north coast of California, the Northwestern pond turtle is sparsely distributed, mainly at ponds in the interior. However, they are known to occur in semi-permanently inundated woody dune hollows in Manila and freshwater/riparian swamp within the CMA contains suitable habitat.

Bird Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Accipiter cooperi</i> cooper's hawk (nesting*)	CSC G5/S3	Generally inhabits open, interrupted or marginal woodlands. Nest sites are primarily found in riparian growths of deciduous trees such as those found in canyon bottoms on river flood plains. They are also found in live oaks.	Present. Migrating and wintering birds use riparian and woodland habitats in around the CMA. Coniferous forest on site provides potential breeding habitat and breeding has been confirmed in the Ma-le'l area during the course of breeding bird survey efforts (Hunter et al. 2005).

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<i>Accipiter striatus</i> sharp-shinned hawk (nesting*)	CSC G5/S3	Sharp-shinned hawk occupies Ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. North-facing slopes with plucking perches are critical requirements. Generally nests within 275 feet of water.	High Potential. While nesting sharp-shinned hawks are uncommon in the Humboldt Bay region they have been documented and banded in the summer at the adjacent Lanphere Dunes. Coniferous forest habitats within the CMA could potentially provide habitat for wintering or migrant birds.
<i>Ardea alba</i> great egret (rookery**)	G5/S4	Great egret is a colonial nester in large trees. Rookery sites are located near marshes, tide flats, irrigated pastures and margins of rivers and lakes.	Present (non-breeding). A local resident and breeder, great egret is common in the Humboldt Bay region, including the CMA. The largest multi-species heron and egret rookery site in northwestern California is located within Humboldt Bay on Indian Island approximately 2.5 miles southeast of the CMA (Harris 1996, Hunter et al. 2005). Compared with other species breeding at the Indian Island rookery, great egret nests in the highest density.
<i>Ardea herodias</i> great blue heron (rookery**)	G5/S4	Great blue heron is a colonial nester in tall trees, cliffsides and sequestered locations on marshes. Rookery sites are located in close proximity to foraging areas: marshes, lake margins, tide flats, rivers, streams and wet meadows.	Present (non-breeding). A local resident and breeder, great blue heron is common in the Humboldt Bay region, including the CMA. The largest multi-species heron and egret rookery site in northwestern California is located within Humboldt Bay on Indian Island approximately 2.5 miles southeast of the CMA (Harris 1996, Hunter et al. 2005).

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<p><i>Asio flammeus</i> short-eared owl (nesting*)</p>	<p>CSC G5/S3</p>	<p>Found in swamp lands, both fresh and salt, lowland meadows and irrigated alfalfa fields. Tule patches or tall grass are needed for nesting and daytime seclusion. Nests on dry ground in a depression concealed in vegetation.</p>	<p>High Potential (non-nesting). Short-eared owls are migrant and winter visitors and accidental breeders in northwestern California. Some of the salt marsh within the CMA provides suitable habitat for this species. They are known to occur in the Mad River Slough Wildlife Area just east of the Mad River Slough adjacent to the CMA, in the dunes and adjacent pasture in the Lanphere Dunes, at Eel River Wildlife a and tidelands of the Eel River estuary, at Centerville approximately 20 miles south of the CMA, Fay Slough approximately 4 miles southeast of the CMA (Harris 1996, Hunter et al. 2005) and were observed recently on the south spit of Humboldt Bay approximately 18 miles south of the CMA (S. McAllister, pers. obs.).</p>
<p><i>Chaetura vauxi</i> Vaux's swift (nesting*)</p>	<p>CSC G5/S3</p>	<p>Vaux's swift occurs in redwood, Douglas fir and other coniferous forests. Nesting is often in flocks and takes place in large hollow trees and snags. Vaux's Swift forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.</p>	<p>High Potential. Coniferous forest and the riparian areas within the CMA serve as potential habitat for Vaux's swifts and they have been documented in riparian habitat at Lanphere, just north of the CMA (A. Pickart, pers. obs.).</p>

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<p><i>Charadrius alexandrinus nivosus</i> western snowy plover (nesting/coastal population***)</p>	<p>FT G4T3/S2</p>	<p>The federal listing applies only to the Pacific coastal population. Western snowy plover inhabits sandy beaches, salt pond levees and shores of large alkali lakes. In Northern California, breeding and wintering occurs along ocean beaches (including back dunes) and gravel bars of the Eel River (Colwell et al. 2002). Sand, gravelly or friable soils and sometimes driftwood above the mean high tide line are necessary for nesting (LeValley 1999).</p>	<p>Moderate Potential. Beach habitat along the North Spit of Humboldt Bay within and adjacent to the CMA does not appear to support nesting snowy plovers. However, the back dunes of the CMA do provide suitable breeding habitat for plovers. Breeding season surveys of the North Spit, conducted approximately once monthly since 1997, have yielded negative results for snowy plover presence near the CMA. However, these monitoring efforts did not survey the backdunes of the CMA where plovers could breed. Additionally, the survey effort was inconsistent and not considered adequate to assume probable absence of plovers within the CMA.</p>
<p><i>Circus cyaneus</i> northern harrier (nesting*)</p>	<p>CSC G5/S3</p>	<p>Northern harrier inhabits coastal salt and fresh-water marsh. Nesting and foraging take place in grasslands, from salt grass in desert sink to mountain cienagas. Nesting is on the ground in shrubby vegetation, usually at marsh edge. Nests are built of a large mound of sticks in wet areas.</p>	<p>Present. Northern harriers commonly winter and migrate through and uncommonly breed and summer in coastal marshes and grasslands around Humboldt Bay including within the CMA (Harris 1996, Hunter et al. 2005).</p>
<p><i>Dendroica petechia brewsteri</i> Yellow warbler (nesting*)</p>	<p>CSC G5T3?/S2</p>	<p>Yellow warbler occurs in conjunction with riparian-associated plants and prefers willows, cottonwoods, aspens, sycamores and alders for nesting and foraging. Nesting also occurs in montane shrubbery in open coniferous forests.</p>	<p>Present. Likely to occur within the willow dominated dune swales, freshwater/riparian swamps and potentially within the coniferous forest within the CMA during migration but not known to breed there (Hunter et al. 2005).</p>

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<i>Egretta thula</i> snowy egret (rookery**)	G5/S4	Snowy egret is a colonial nester with nest sited situated in protected beds of tense tules. Rookery sites are typically situated close to foraging areas such as marshes, tidal flats, streams wet meadows and borders of lakes.	Present (non-breeding). A local resident and breeder, snowy egret is common in the Humboldt Bay region, including the CMA. The largest multi-species heron and egret rookery site in northwestern California is located within Humboldt Bay on Indian Island approximately 2.5 miles southeast of the CMA (Harris 1996).
<i>Elanus leucurus</i> white-tailed kite (nesting*)	CFP G5/S3	White-tailed kite occurs in rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows or marshes are used for foraging close to isolated, dense-topped trees for nesting and perching.	Present. Common within the coastal lowland agricultural fields and wetland areas of the Mad River floodplain east of the CMA. White tailed kite is known to occur within the project area and breeding has been confirmed in breeding bird atlas survey blocks that include the CMA (Hunter et al. 2005).
<i>Empidonax traillii</i> willow flycatcher (nesting*)	SE G5/S1S2	Willow flycatcher inhabits extensive thickets of low, dense willows on the edges of wet meadows, ponds or backwaters at elevations between 2000 and 8000 feet. They require dense willow thickets for nesting and roosting. Low, exposed branches are used for singing posts and hunting perches.	Moderate Potential. Migrant willow flycatchers may be found in dune swales and limited willow habitats within the CMA. Willow flycatchers have been documented as migrants in the Lanphere dunes region. Although potentially suitable willow-dominated habitat is present; breeding within the CMA is unlikely as summering by willow flycatcher in Humboldt County is believed to be a rare and localized phenomenon and has not been reported from the project region (Hunter et al. 2005).
<i>Falco columbarius</i> merlin (wintering****)	CSC G5/S3	Merlin inhabits the seacoast, tidal estuaries, open woodlands, savannahs, grassland edges, deserts and farm and ranch lands. Clumps of trees or windbreaks are required for roosting in open country.	Present. In northwestern California, merlin is an uncommon migrant and winter visitor and appears each fall in the open lowlands along the coast such as those present within and adjacent to the CMA (Harris 1996, Hunter et al. 2005).

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<i>Falco peregrinus</i> peregrine falcon (nesting*)	CFP G4T3/S2	Peregrine falcon occurs near wetlands, lakes, rivers or other water on cliffs, banks, dunes, mounds and human-made structures. Nests consist of a scrape on a depression or ledge in an open site.	Present. Suitable coastal lowland habitats supporting shorebirds and other waterbirds upon which peregrine falcons feed are present within the CMA. Peregrines also forage in Humboldt Bay east of the CMA. Nesting has been suspected, but not confirmed at the Samoa Bridge approximately 3 miles southeast of the CMA.
<i>Haliaeetus leucocephalus</i> bald eagle (nesting* & wintering****)	FT, SE CFP G5/S2	Bald eagle inhabits the ocean shore, lake margins and rivers for both nesting and wintering. Most nests are within 1 mile of water. Nesting takes place in large old growth or dominant live trees with open branches, especially Ponderosa pine. Bald eagle roosts communally in winter.	Low Potential. Bald eagle nesting habitat does not occur within the CMA although during winter occasional bald eagles forage along the margins of Humboldt Bay near the CMA
<i>Numenius americanus</i> long-billed curlew (nesting*)	CSC G5/S2	Long-billed curlew breeds in upland short grass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others.	Moderate Potential. Long-billed curlew is present in Humboldt Bay near the CMA during winter and migration periods. Long-billed curlews use the beach habitat in the Lanphere Dunes, north of the CMA, while foraging.
<i>Nycticorax nycticorax</i> black-crowned night-heron (rookery**)	G5/S3	Black-crowned night heron is a colonial nester, usually in trees, occasionally in tule patches. Rookery sites are located adjacent to foraging areas: lake margins, mud-bordered bays and marshy locations.	Present. Black-crowned night heron is a common local resident and breeder in coastal lowlands (Harris 1996). It is known to breed and roost at a number of sites within lowlands of the Mad River and around Humboldt Bay, likely including sites within the CMA. Breeding is also known to occur within the multi-species heron and egret rookery on Indian Island approximately 2.5 miles southeast of the CMA (Harris 1996).

Bird Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Pandion haliaetus</i> osprey (nesting*)	CSC G5/S3	Osprey occurs along the ocean shore, bays, freshwater lakes and larger streams. Large nests are built in tree tops within 15 miles of a good fish-producing body of water.	Present. Ospreys forage in the ocean adjacent to the CMA and in Humboldt Bay. An active osprey nest is known on Ma-le'l North.
<i>Poecile atricapilla</i> black-capped chickadee	CSC G5T2T3/S1	Black-capped chickadee inhabits riparian woodlands in Del Norte and northern Humboldt counties. The species is primarily found in deciduous tree types, especially willows and alders, along large or small watercourses.	Present. Occurs throughout the CMA in coniferous forest, woody dune swales, freshwater/riparian marsh and thickets. Also likely in adjacent suburban habitats.
<i>Pelecanus occidentalis californicus</i> California brown pelican (nesting* colony)	FE, SE, CFP G4T3/S2?	California brown pelican is a colonial nester on coastal islands just outside the surf line. Nesting occurs on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators.	Present. Brown pelican uses the near-shore Pacific Ocean west of the CMA and may occasionally use the beach and coastal promontories for day-roost sites. Pelicans also use Humboldt Bay east of the CMA extensively for foraging, loafing and roosting habitat. No nesting sites are known north of Monterey Bay.
<i>Phalacrocorax auritus</i> double-crested cormorant (rookery** site)	CSC G5/S3	Double-crested cormorant is a colonial nester on coastal cliffs, offshore islands and along lake margins in the interior of the state. The species nests along the coast on sequestered islets, usually on ground with a sloping surface or in tall trees along lake margins.	Present (non-nesting). Present locally year-round, double-crested Cormorant breeds on pilings in Humboldt Bay near the Old Arcata Wharf, approximately 3 miles southeast of the CMA, forage in Humboldt Bay and also in the ocean adjacent to CMA, and roost on pilings along the bay shore.
<i>Progne subis</i> purple martin (nesting*)	CSC G5/S3	Purple martin inhabits woodlands, low elevation coniferous forest of Douglas fir, Ponderosa pine and Monterey pine. Nesting occurs primarily in old woodpecker cavities mostly but can also take place within human-made structures. Nests are often located in tall, isolated trees and snags.	High Potential. Suitable habitat for purple martins is present in and around the CMA. Breeding could occur but has not been documented, and in Humboldt County appears to be somewhat removed from the immediate coast (Hunter et al. 2005). However, purple martins have been documented in the forest habitat in the adjacent Lanphere Dunes.

Bird Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Rallus longirostris levipes</i> California clapper rail	FE, SE, CSC G5T1/S1	California clapper rail inhabits salt water and brackish marshes traversed by tidal sloughs in the vicinity of the San Francisco Bay. This species is associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not Present. Although this species reportedly formerly occurred at Humboldt Bay (known from 1 old specimen), and other California sites, it is not expected to occur in northwestern California at present (Harris 1996, Hunter et al. 2005). An unverified nesting report exists from Mad River Slough (Burton 1972 <i>in</i> Hunter et al. 2005).
<i>Riparia riparia</i> bank swallow (nesting*)	ST G5/S2S3	Bank swallow is a colonial nester, nesting primarily in riparian and other lowland habitats west of the desert. Vertical banks or cliffs with fine textured, sandy soils to dig a nesting hole near streams, rivers, lakes or the ocean are required.	Low Potential. No breeding habitat for bank swallows is present in or near the CMA Although rare migrants could potentially use the area for foraging and a vagrant has been reported from the adjacent Lanphere Dunes.
<i>Sterna elegans</i> elegant tern (nesting* colony)	CSC G2/S1	There are only 3 known breeding colonies of elegant tern: San Diego Bay, Los Angeles Harbor and Bolsa Chica Ecological Reserve. Elegant tern nests on open, sandy, undisturbed beaches and on salt-evaporating pond dikes (San Diego) in association with Caspian tern.	High Potential. Elegant tern is a fall visitor to northwestern California and frequents the bay shore along the North Spit of Humboldt Bay including the CMA. Nesting is highly unlikely.

Mammal Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
<i>Arborimus albipes</i> white-footed vole	CSC G3G4/S2S3	White-footed vole inhabits mature coastal forests in Humboldt and Del Norte counties. Areas near small, clear streams with dense alders and shrubs are preferred. White-footed vole occupies the habitat from the ground surface to the canopy and feeds in all layers.	Present. White-footed vole is known from the project vicinity. A CNDDDB occurrence record exists for an area west of the Mad River Slough, approximately 2.5 miles south-southwest of Tye City. This occurrence is just north of the CMA in beach pine forest.

Mammal Species	Status*	Habitat Characteristics	Potential for Occurrence at the CMA
		Nesting takes place on the ground under logs or rocks.	
<i>Arborimus pomo</i> Sonoma tree vole	FSC, CSC G3/S3	Sonoma tree vole occurs along the north coast fog belt from Oregon border to Sonoma County in Douglas fir, redwood and montane hardwood-conifer forests. The species feeds almost exclusively on Douglas fir needles but will occasionally take needles of grand fir, hemlock or spruce.	Low Potential. Although red tree vole is known from coastal sites, sufficient suitable Douglas fir habitat is unlikely within the CMA.
<i>Martes americana humboldtensis</i> Humboldt marten	CSC G5T2T3/S2 S3	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County associated with late-successional coniferous forests. Forests with low overhead cover are preferred.	Not Present. Suitable habitat for Humboldt marten does not occur within the CMA.
<i>Myotis evotis</i> Long-eared myotis	G5/S4?	Found in all brush, woodland and forest habitats from sea level to about 9000 feet. Prefers coniferous woodlands and forests. Nursery colonies are typically in buildings, crevices, spaces under bark. Snags and caves are used primarily as night roosts.	Not Present. Suitable habitat for Humboldt marten does not occur within the CMA.

Note: This list was compiled from a search of the Eureka, Arcata North, Arcata South, Tyee City, Fields Landing, Cannibal Island, and McWhinney Creek 7.5 minute USGS quadrangles of the California Department of Fish and Game Natural Diversity Data Base (CNDDDB 2006) and California Native Plant Society on-line inventory (CNPS 2006), and an assessment of the habitats present within the CMA by Mad River Biologists.

Key to status codes:

CFP: CDFG Fully Protected Animal
 CLS: California Lichen Society "Red List"
 CSC: CDFG Species of Special Concern

FSC: Federal Species of Concern
 SE: State Endangered
 ST: State Threatened

FE: Federal Endangered
FT: Federal Threatened

* Listing refers only to the nesting population.
** Listing applies only to rookery sites.
*** Listing applies only to the coastal breeding population.
**** Listing applies only to the wintering population.

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